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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,712	10/27/2003	Hideki Taniguchi	25682	2281

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NATH & ASSOCIATES
112 South West Street
Alexandria, VA 22314

EXAMINER	
POPA, ILEANA	

ART UNIT	PAPER NUMBER
1633	

DATE MAILED: 10/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/693,712	TANIGUCHI ET AL.	
	Examiner	Art Unit	
	Ileana Popa	1633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-74* is/are pending in the application.

4a) Of the above claim(s) *14-17,22-24,32-37,49,50,53-55 and 57-74* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,18-21,25-31,38-48,51,52 and 56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of the invention of Group I, drawn to a method of separating a pancreas stem cell from the pancreas of a mammal in the reply filed on 07/21/2006 is acknowledged.

Claims 6, 11, 15, 17, 20-24, 27, 32, 34, and 36 have been amended. Claims 38-74 are new. No new matter was introduced by these amendments or by the new claims.

Claims 14-17, 22-24, 32-37, 49, 50, 53-55, and 57-74 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 07/21/2006.

Claims 1-13, 18-21, 25-31, 38-48, 51, 52, and 56 are under examination.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 04/24/2002. It is noted, that applicant has filed a certified copy of the PCT/JP02/04084 application as required by 35 U.S.C. 119(b). However, an English translation has not been provided. Additionally, acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 04/24/2001. It is noted, however, that applicant has not filed a certified copy of the

2001/126315 application as required by 35 U.S.C. 119(b). Accordingly, the priority date for the instant application is considered to be 10/27/2003.

Should Applicants provide a certified translation of their foreign priority document to overcome the prior art rejection, Applicants should indicate whether the priority application is identical to the instant application, or if the priority application contains additional disclosure. If there is additional disclosure, a brief summary should be provided. Applicants should also indicate where support for each of the claim limitations (for the independent claims) can be found in the translated priority document by page and line number. If support is not found *in ipsis verbis*, clarification on the record may be helpful to the examination process.

Double Patenting

3. Applicant is advised that should claims 1-5, 40, and 43 be found allowable, claims 7-10, 25-29, 41, 42, and 45 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 11-13 and 40-48 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The instant claims are drawn to a pancreatic stem cell that can be separated from the pancreas of a mammal" and therefore, as written, they do not sufficiently distinguish over cells that exist naturally because the claims do not particularly point out any non-naturally occurring differences between the claimed products and the naturally occurring products. The fact that the claimed pancreatic stem cells can be separated from the pancreas of a mammal does not necessarily mean that it is separated. Therefore, claims 11-13 and 40-48 encompass a naturally occurring cell. In the absence of the hand of man, the naturally occurring products are considered non-statutory subject matter. *See Diamond v. Chakrabarty*, 447 U.S. 303, 206 USPQ 193 (1980). The claims should be amended to indicate the hand of the inventor, e.g., by insertion of "Isolated" or "Purified" as taught by page [insert page number] of specification. See MPEP 2105.

Claim Rejections - 35 USC § 112, 2nd paragraph

6 The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter that the applicant regards as his invention.

7. Claims 13 and 47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites the limitation "Flk-1" in claim 11, which is dependent on claim 1. Similarly, claim 47 recites the limitation "Flk-1" in claim 41, which is dependent on claim 7. There is insufficient antecedent basis for this limitation in claims 1 and 7.

8. Claims 28-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what Applicant means by antibody having specific affinity for a gene encoding the marker protein. While the art teaches that antibodies have specific affinity for the cognate protein antigens, the art does not teach that the same antibodies react with a gene encoding the cognate protein antigens. Therefore, the metes and bounds of the claims cannot be determined and the claims are indefinite.

9. Claims 1-10, 25-31, 38, 39, and 56 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: steps disclosing how to use the substances having affinities for the markers to separate or identify a pancreatic stem cell (claims 1-10, 38, 39, and 56), how to select cells from the pancreas (claims 25-27), or how to fractionate the population of cells (claims 28-31).

10. Claims 28-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention. It is not clear what the Applicant means by a method of screening comprising "containing a population of cells with an antibody". Since cells cannot be contained with an antibody, the metes and bounds of the claims cannot be determined and the claims are indefinite. Amending the claims to recite "contacting a population of cells with an antibody" would overcome this rejection.

Claim Rejections - 35 USC § 112 – written description

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 1, 2, 4, and 5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Adequate written description requires more than a mere statement that it is part of the invention. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC1993). The Guidelines for the Examination of Patent Application Under the 35 U.S.C.112, ¶ 1"Written Description Requirement" makes it clear that the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species disclosures of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, functional characteristics coupled

with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001, see especially page 1106 3rd column).

Claims 1, 2, 4, and 5 encompass a variety of chemical and biological substances having specific affinity for the claimed marker protein receptors or the genes encoding them, such as antibodies, ligands, agonists, or oligonucleotides having the ability to hybridize with the genes encoding the marker protein receptors.

To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail such that the Artisan can reasonably conclude the inventors had possession of the claimed invention. Such possession may be demonstrated by describing the claimed invention with all its limitations using such descriptive means as words, structures, figures, diagrams, and/or formulae that fully set forth the claimed invention. Possession may be shown by an actual reduction to practice, showing that the invention was "ready for patenting", or by describing distinguishing identifying characteristics sufficient to show that the Applicants were in possession of the claimed invention (January 5, 2001, Fed. Reg., Vol. 66, No. 4, pp.1099-11).

In analyzing whether the written description requirement is met for the genus claims, it is determined whether representative numbers of species have been described by their complete structure and functional characteristics. The specification only discloses the use of antibodies to select pancreatic stem cells. Therefore,

Applicants' invention is obtaining pancreatic stem cells, by using one specific type of agent, i.e., antibodies that specifically bind to the claimed cell surface markers. Besides antibodies and nucleic acids capable of hybridizing with the gene encoding the marker rpoteins, the specification does not provide any disclosure as to what would have been other substances and their mode of use for separating/identifying or obtaining pancreatic stem cells. Additionally, the specification does not describe a representative number of species (i.e., substances having specific affinity for a marker protein or a gene encoding them) by their relevant identifying characteristics, specific features and functional attributes that would distinguish different members of the claimed genus. In conclusion, the limited information is not sufficient to reasonably convey to one of ordinary skills in the art that the Applicants were in possession of the instant claimed invention, at the time the application was filed. Thus, it is concluded that the written description requirement is not satisfied for the claimed genus.

Claim Rejections - 35 USC § 112 - enablement

13. Claims 1-3, 7, 8, 11, 25-27, 38, 40-42, and 56 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of separating a pancreatic stem cell by using antibodies having specific affinity for c-Met, c-kit, CD45, TER119 proteins and, optionally, by further using antibodies having affinity for Flk-1, does not reasonably provide enablement for a method of separating/identifying a pancreatic stem cells by using two or more kinds of substances having specific affinity for a marker protein selected from the group consisting of c-Met,

c-kit, CD45, and TER119 or a gene encoding the same. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

** Claims 3, 27, 38 and 59 are included in the instant rejection to the extent that they read on antibodies having affinity for two or more marker proteins (see below).

Factors to be considered in determining whether a disclosure meets the enablement requirement of 35 USC § 112, first paragraph, have been described by the court in *In re Wands,* 8 USPQ2d 1400 (CA FC 1988).

Wands states on page 1404,
"Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized by the board in Ex parte Forman. They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skills of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims."

While determining whether a specification is enabling, one considers whether the claimed invention provides sufficient guidance to make or use the claimed invention, if not, whether an artisan would require undue experimentation to make and use the claimed invention and whether working examples have been provided.

Claims 1-3, 7, 8, 11, 25, 26, 38, and 56 are directed to a method of separating a pancreatic stem cell expressing specific cell surface markers. The claims are very broad. The substances that can be used to separate pancreatic stem cells, as claimed by the present invention, embraces a very large number of chemical and biological entities, such as antibodies, ligands, agonists, or oligonucleotides having the ability to hybridize with the genes encoding the marker protein receptors.

The specification teaches and provides examples of using antibodies for the isolation and purification of pancreatic stem cells having the phenotype c-Met$^+$ c-Kit$^-$ CD45$^-$ TER119$^-$ or c-Met$^+$ c-kit$^-$ CD45$^-$ TER119$^-$ Flk-1$^-$. The above evidence has been noted and considered. Apart from the above teachings, the specification fails to provide sufficient guidance for a skilled artisan on how to obtain pancreatic stem cells by using any other substance with affinity for c-Met, c-kit, CD45, and TER119/Flk-1 or the genes encoding the same. The specification as filed is not enabling for the claimed invention because the specification as filed does not teach the usefulness of any other substance beside antibodies as being useful for the separation of pancreatic stem cells. It is noted that, beside antibodies, the specification disclosure the use of nucleic acid probes having specific affinity for the genes encoding the marker proteins, wherein the nucleic acids are able to hybridize with the cognate gene after mRNA is extracted from the lysed cells and subjected to Northern blot analysis, i.e., the nucleic acid probes are used to identify pancreatic stem cells and not to separate them. The scope of separating pancreatic stem cells is to obtain live cells and it is not clear how lysing the cells would accomplish this. Given the reasons above, the specification would need to describe examples that specifically address the use of each relevant substance having affinity for the claimed surface markers or the genes encoding them to enable one of ordinary skills in the art to use such a method without undue experimentation.

Additionally, it is not clear how the use of antibodies with specific affinity for two or even three of the claimed markers would result in the specific separation of the claimed pancreatic stem cells, since the art teaches that CD45, c-kit, and TER119 can

also be used as markers for other stem or progenitor cells, for example hemtopietic progenitors (Nishikawa et al., Development, 1998, 125: 1747-1757, p. 1755, Fig. 8), which are found in pancreas (Suzuki et al., Diabetes, 2004, 53: 2143-2152, p. 2145, column 1, *Results*). Therefore, one of ordinary skills in the art would not reasonable conclude that isolation of pancreatic stem cells could be achieved by using two or even three of the claimed markers.

In conclusion, the presently claimed invention provides enough of a disclosure to allow one of skill in the art to use a method of separating a pancreatic stem cell by using antibodies having specific affinity for c-Met, c-kit, CD45, TER119 proteins and, optionally, by further using antibodies having affinity for Flk-1.

14. Claims 4-6, 9, 10, 28, 29, and 39 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of identifying a pancreatic stem cell by using antibodies or nucleic acid probes having specific affinity for 4 or 5 marker selected from the group consisting of c-Met, c-kit, CD45, TER119, and Flk-1, does not reasonably provide enablement for a method of identifying a pancreatic stem cell by using two or more kinds of substances having specific affinity for a marker protein selected from the group consisting of c-Met, c-kit, CD45, and TER119 or a gene encoding the same. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

It is not clear how the use of antibodies or nucleic acid probes with specific

affinity for two or even three of the claimed markers would result in the specific identification of the claimed pancreatic stem cells, since the art teaches that CD45, c-kit, and TER119 can also be used as markers for other stem or progenitor cells, for example hemtopietic progenitors (Nishikawa et al., Development, 1998, 125: 1747-1757, p. 1755, Fig. 8), which are found in pancreas Suzuki et al., Diabetes, 2004, 53: 2143-2152, p. 2145, column 1, *Results*). Therefore, one of ordinary skills in the art would not reasonable conclude that the specific identification of pancreatic stem cells could be achieved by using two or even three of the claimed markers.

In conclusion, the presently claimed invention provides enough of a disclosure to allow one of skill in the art to use a method of identifying a pancreatic stem cell by using antibodies (or nucleic acid probes) having specific affinity for c-Met, c-kit, CD45, TER119 proteins (or the genes encoding them) and, optionally, by further using antibodies (or nucleic acid probes) having affinity for Flk-1 (or the gene encoding it).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. Claims 1-13, 18-21, 25-31, 38-48, 51, 52, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramyia et al. (Nature Medicine, 2000, 6: 278282), in

view of Serup (Nature Genetics, 2000, 25: 134-135), Oberg-Welsh et al. (Pancreas, 1996, 12: 334-339), and Suzuki et al. (Hepatology, 2000, 32: 1230-1239).

Ramyia et al. teach obtaining pancreatic ductal stem cells expressing c-Met by culturing single cell suspensions isolated from the digested pancreatic tissue (Abstract, p. 279, column 1). Ramyia et al. teach that these cells are able to produce functioning islets and therefore they could provide an abundant islet source for the treatment of type I diabetes (Abstract, p. 278, column 2). Ramyia et al. do not teach separating or identifying the pancreatic stem cells by using antibodies against c-Met c-kit, CD45, and TER119. It would have been obvious to one of skill in the art, at the time the invention was made, to use antibodies directed against c-Met and additional markers, to separate the pancreatic stem cells from the single cell suspension of Ramyia et al., with a reasonable expectation of success. The motivation to separate the pancreatic stem cells is provided by Serup, who teaches that, since there are no reliable surface markers, the identity of the pancreatic stem cells is unknown and therefore there is a need of identifying these markers for understanding their biology and obtaining *bona fide* pancreatic stem cells for therapy (Abstract, p. 134, column 1 bridging column 2, and column 3, p. 135, column 3). One of skill in the art would have been motivated to use c-Met because Ramyia et al. teach that c-Met is expressed by pancreatic stem cells. One of skill in the art would have been motivated to use additional markers because the art teaches that more than one marker is needed to separate stem cells. One of skill in the art would have had been motivated to use c-Met, c-kit, Flk-1, CD45, and TER119 as markers for the following reasons: (i) Oberg-Welsh et al. teach that c-kit and Flk-1 are

expressed in the pancreatic ducts where the pancreatic stem cells reside (Abstract, p. 336, column 2, p. 337, column 2, second paragraph), and (ii) Suzuki et al. teach the using antibodies directed against CD45 and TER119 to exclude contaminating hematopoietic cells expressing these markers from stem cell preparations (p., 1231, column 1, second paragraph, p. 1232, column 1). One of skill in the art would have been expected to have a reasonable expectation of success in isolating these cells because the art teaches the successful use of stem cell separation by using the claimed markers. Thus, the claimed invention was *prima facie* obvious at the time the invention was made.

Claims 12, 18, 20, 21, 30, and 43-45 disclose a specific phenotype for the pancreatic stem cells, i.e., c-Met$^+$ c-kit$^-$ CD45$^-$ TER119$^-$. According to the teachings above, one of skill in the art would have had expected that cells having the phenotype c-Met$^+$ CD45$^-$ TER119$^-$ would be pancreatic stem cells. With respect to the limitation of the cells being c-kit$^-$, further fractionating the cell population in c-kit$^-$ and c-kit$^+$ and assessing their stem cell potential is not innovative over the prior art since this is a standard procedure in isolating stem cells by flow cytometry. For example, Suzuki et al. teach separating hepatic stem cells by fractionating the population by c-kit expression, assessing each population for ability to form colonies (i.e., stem cell potential) and finding that, although they expected the cells expressing c-kit to have stem cell potential, the c-kit$^-$ cells were the ones with the ability to form colonies, i.e., having stem cell potential (p. 1230, column 2 bridging p. 1231, columns 1 and 2). According to these

teachings, one of skill in the art would have had known to further fractionate the c-Met$^+$ CD45$^-$ TER119$^-$ into c-kit$^+$ cells and c-kit$^-$ cells and assess their clonogenic potential to identify the pancreatic progenitor cell. Therefore, one of skill in the art would have had easily identified c-Met$^+$ c-kit$^-$ CD45$^-$ TER119$^-$ cells as the pancreatic stem cells. One of skill in the art would have been expected to have a reasonable expectation of success in isolating these cells because the art teaches the successful use of stem cell separation by using the claimed markers. With respect to the limitation of a cloned pluripotent pancreatic stem cell (claims 18, 20, and 21), since the stem cell potential is assesses by the ability to form colonies, the isolated pancreatic stem cells are cloned pluripotent stem cells. Thus, the claimed invention was *prima facie* obvious at the time the invention was made.

Claims 13, 19, 31, 46-48, 51, and 52 disclose the specific phenotype of c-Met$^+$ c-kit$^-$ CD45$^-$ TER119$^-$ Flk-1$^-$. Again, further fractionating the c-Met$^+$ c-kit$^-$ CD45$^-$ TER119$^-$ cells into Flk$^-$ and Flk$^+$ and assessing their stem cell potential is not innovative over the prior art since this is a standard procedure in isolating stem cells by flow cytometry (see above). One of skill in the art would have had known to further fractionate the c-Met$^+$ c-kit$^+$ CD45$^-$ TER119$^-$ into Flk-1 positive and negative cells and assess their clonogenic potential to identify the pancreatic progenitor cell. Therefore, one of skill in the art would have had easily identified c-Met$^+$ c-kit$^-$ CD45$^-$ TER119$^-$ Flk-1$^-$ cells as the pancreatic stem cells. One of skill in the art would have been expected to have a reasonable expectation of success in isolating these cells because the art teaches the successful

use of stem cell separation by using the claimed markers. With respect to the limitation of a cloned pluripotent pancreatic stem cell (claims 19, 51, and 52), since the stem cell potential is assesses by the ability to form colonies, the isolated pancreatic stem cells are cloned pluripotent stem cells. Thus, the claimed invention was *prima facie* obvious at the time the invention was made.

17. No claim is allowed. No claim is free of prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ileana Popa whose telephone number is 571-272-5546. The examiner can normally be reached on 9:00 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Nguyen can be reached on 571-272-0731. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ileana Popa, PhD

JANET L. EPPS-FORD, PH.D.
PRIMARY EXAMINER